

AMENDMENTS TO THE CLAIMS

Claims 1-6 (Canceled)

Claim 7 (New) A desktop thermal lens microscope apparatus, comprising:

- a semiconductor laser forming an excitation light source operable to emit excitation light;
- a chopper positioned to modulate the excitation light when emitted from said excitation light source;
- a beam expander that enables collimation adjustment in a direction of a light path of the excitation light and biaxial centering in a direction perpendicular to the excitation light path so as to be able to emit the modulated excitation light as plane waves in use;
- another semiconductor laser forming a probe light source operable to emit probe light;
- a collimator lens positioned to emit the probe light as parallel light-ray beams when the probe light is emitted from said probe light source;
- a microscope optical system operable to receive the modulated excitation light as plane waves and the probe light as parallel light-ray beams, said microscope optical system comprising an objective lens system and having a stage for receiving a specimen thereon, wherein the modulated excitation light and the probe light can be passed through said objective lens system and into said stage such that a thermal lens is formed by irradiation of the excitation light into the specimen on said stage, wherein the probe light can be passed through the thermal lens and detection of substances in the specimen can be performed by measuring diffusion of the probe light resulting from action of the thermal lens by an optical axis of the probe light being adjusted by the thermal lens;
- a light receiving system positioned to receive the modulated excitation light and the probe light that has passed through the thermal lens, wherein a measuring part thereof is operable to measure adjustment of the optical axis of the probe light; and
- a single housing, wherein said excitation light source, said probe light source, said chopper, said beam expander, said collimator lens and said microscope optical system are integrated together in said single housing.

Claim 8 (New) The desktop thermal lens microscope apparatus of claim 7, wherein said chopper is operable to perform lock-in amplifier signal processing, and said microscope apparatus further comprises a modulation mechanism operable to perform phase-locked loop (PLL) control of a drive of said chopper to modulate the excitation light.

Claim 9 (New) A method for performing a chemical analysis, comprising performing a chemical analysis of a very small quantity in a micro spatial region on a chip with the use of the desktop thermal lens microscope apparatus according to claim 8.

Claim 10 (New) A method for performing a chemical analysis, comprising performing a chemical analysis of a very small quantity in a micro spatial region on a chip with the use of the desktop thermal lens microscope apparatus according to claim 7.

Claim 11 (New) The desktop thermal lens microscope of claim 7, wherein said single housing further has said light receiving system integrated therein.

Claim 12 (New) The desktop thermal lens microscope of claim 7, wherein said light receiving system comprises a diffraction grating to separate the probe light and the excitation light from each other such that only the probe light is received by said measuring part.

Claim 13 (New) A method for performing a chemical analysis, comprising performing a chemical analysis of a very small quantity in a micro spatial region on a chip with the use of the desktop thermal lens microscope apparatus according to claim 12.